water chamber is limited to a rate of outflow which is a function of the head of the liquid in the effluent water chamber. The outflow is limited by a siphon which primes at a chamber high liquid level and loses prime at said chamber low liquid level, or by holes in a weir wall.

IN THE CLAIMS:

Please delete claims 1-32 in the original and amended claims in the PCT application, and insert the following new claims:

CLAIMS

33. An oil from water separator including an oil disengagement chamber adapted to receive an oil and water mixture and retain it for a sufficient time in a relatively undisturbed state whereby oil in the mixture floats to the top of the mixture resulting in a substantially oil free volume of water having a layer of oil derived from said oil and water mixture floating on the surface thereof, said oil disengagement chamber partially separated from an effluent water chamber by an under flow baffle which ducts said substantially oil free volume of water to said effluent water chamber, the oil disengagement chamber having a low liquid level which is higher than the under flow baffle, the outflow of said substantially oil free volume of water from said effluent water chamber being limited by flow retarding means to a rate of outflow which is a function of the head of the liquid in said effluent water chamber.

34. The separator of Claim 33, wherein said flow retarding means is operable to accumulate said oil and water mixture in said oil disengagement chamber in an accumulation volume above the chamber low liquid level.

35. The separator of Claim 33, wherein said flow retarding means comprises at least one siphon which primes at a chamber high liquid level and loses prime at said chamber low liquid level.

36. The separator of Claim 33, wherein said flow retarding means comprises at least one bleed aperture.

37. The separator of Claim 36, wherein said at least one bleed aperture is located at the level of said chamber low liquid level.

38. The separator of Claim 33, wherein said flow retarding means is sized with reference to expected inflow of said oil and water mixture into said oil disengagement chamber such that, during operation, the level of said oil and water mixture will rise from said chamber low liquid

level and then return to said chamber low liquid level, thereby defining an oil and water mixture accumulation volume above said chamber low liquid level.

39. The separator of Claim 38, wherein said accumulation volume has a characteristic which is a function of

(a) inflow rate; and

(b) desired residence time of said oil and water mixture in said oil disengagement chamber.

40. An oil from water separation system including an oil disengagement chamber having a flush storage volume defined between a chamber high liquid level and a chamber low liquid level; said flush storage volume caused to exit from said chamber on attainment of said chamber high liquid level.

41. The system of Claim 40, wherein said flush storage volume is caused to exit by means of a siphon.

42. An oil from water separator including an oil disengagement chamber adapted to receive an oil and water mixture and retain it for a sufficient time in a relatively undisturbed state whereby oil in the mixture floats to the top of the mixture resulting in a substantially oil free volume of water having a layer of oil derived from said oil and water mixture floating on the surface thereof, and means for retarding outflow from said chamber until said mixture reaches a predetermined chamber high liquid level whereupon said volume of water is caused to exit said chamber.

43. The separator of Claim 42, wherein, on reaching said chamber high liquid level, outflow is initiated and maintained until a predetermined chamber low liquid level in said chamber is reached at which time outflow is terminated.

44. The separator of Claim 43, wherein said means for retarding outflow is controlled by means sensitive to said chamber high liquid level and said chamber low liquid level.

45. The separator of Claim 42, wherein said outflow is drawn from a point at said predetermined low level in said mixture.

46. The separator of Claim 44, wherein said means sensitive to said chamber high liquid level and said chamber low liquid level is a siphon.

47. The separator of Claim 44, wherein said sensitive means is a level switch actuated pumping system.

48. The separator of Claim 42, wherein, on reaching said chamber high liquid level, outflow is initiated and maintained until a predetermined chamber low liquid level in said chamber is reached at which time outflow is terminated by said means for retarding outflow.

49. The separator of Claim 42, wherein said outflow is controlled by means sensitive to said chamber high liquid level and said chamber low liquid level.

50. The separator of Claim 48, wherein said outflow is drawn from a point at said predetermined low level in said mixture.

51. The separator of Claim 42, wherein said means for retarding outflow comprises a retention wall having at least one aperture at a predetermined level passing therethrough, said at least one aperture adapted to regulate flow of water from said disengagement chamber when said mixture reaches said predetermined chamber high liquid level.

52. An oil from water separator including an oil disengagement chamber adapted to receive an oil and water mixture and retain it for an extended time in a relatively undisturbed state whereby oil in the mixture floats to the top of the mixture resulting in a substantially oil free volume of water having a layer of oil derived from said oil and water mixture floating on the surface thereof, outflow from said chamber being controlled in a predetermined way by flow retarding means.

53. An oil from water separator including an oil disengagement chamber adapted to receive an oil/water mixture and retain it for a sufficient time in a relatively undisturbed state whereby oil in the mixture floats to the top of the mixture resulting in a substantially oil free volume of water having a layer of oil derived from said oil and water mixture floating on the surface thereof, wherein outflow from said chamber is limited by flow retarding means to a predetermined function of the level of said oil and water mixture in said chamber.

54. The separator of Claim 53, wherein said flow retarding means is operable only between a chamber low liquid level and a chamber high liquid level.

55. The separator of Claim 54, wherein said flow retarding means comprises at least one siphon which primes at said chamber high liquid level and loses prime at said chamber low liquid level.

56. The separator of Claim 53, wherein said flow retarding means comprises at least one bleed aperture.

57. The separator of Claim 56, wherein said at least one bleed aperture is located at the level of said chamber low liquid level.

58. The separator of Claim 53, wherein said flow retarding means is sized with reference to expected inflow of said oil and water mixture into said oil disengagement chamber such that, during operation, the level of said oil and water mixture will rise from said chamber low liquid level up to a higher liquid level and then return to said chamber low liquid level, thereby defining for each situation an oil and water mixture active lag capacity between said higher liquid level and said chamber high liquid level.

59. The separator of Claim 58, wherein said active lag capacity has a characteristic which is a function of:

(a) inflow rate; and

(b) desired residence time of said oil and water mixture in said oil disengagement chamber.

60. A method of conversion of a decant separator an oil from water separator which has an oil disengagement chamber adapted to receive an oil and water mixture and retain it for a sufficient time in a relatively undisturbed state whereby oil in the mixture floats to the top of the mixture resulting in a substantially oil free volume of water having a layer of oil derived from said oil and water mixture floating on the surface thereof, the oil disengagement chamber being partially separated from an effluent water chamber by an under flow baffle which ducts the substantially oil free volume of water to the effluent water chamber, the oil disengagement chamber having a low liquid level which is higher than the under flow baffle, said method comprising the step of installing a flow retarding device in or in association with a weir wall of the decant separator so that a rate of outflow of the substantially oil free volume of water is controlled as a function of the head of the liquid in the effluent water chamber.

61. An oil from water separator system as defined in Claim 33, comprising a first and second oil from water separators each as defined by Claim 33, said plurality of separators connected in series whereby outflow from a first separator passes to an inlet of a second separator.

62. A separator of Claim 61, wherein decant overflow from said first separator passes to said inlet of said second separator.